

ABSTRACT

Nondetonable, or low detonation sensitivity, substantially nontoxic liquid monopropellants are provided. The liquid propellants are formed from aqueous solutions of solid oxidizers in liquid oxidizers and water soluble liquid fuels and formulated to have a freezing point less than -10°C . Liquid oxidizers may be inorganic or organic aqueous solutions, with hydrogen peroxide being preferred. Preferred solid oxidizers are water soluble nitrates including ammonium dinitramide, aminoguanidine dinitrate, ammonium nitrate, hydroxylamine nitrate, hydrazine nitrate, guanidine nitrate and aminoguanidine nitrate. Preferred liquid fuels are water soluble alcohols, amines and amine nitrates, hydroxyethyl hydrazine, hydroxyethylhydrazine nitrate, cyanoguanidine, guanidines, aminoguanidines, triaminoguanidines, and their nitrate salts, ethanolamine dinitrate, ethylenediamine dinitrate, polyvinyl nitrate, and aziridine.